

AMENDMENTS

In the Claims

1. – 12. (Canceled)

13. (Currently Amended) A method comprising:

extracting at least one field from a data packet, wherein

said at least one field comprises a source address field and a
destination address field;

determining a flow table index value using said at least one field, wherein

said determining said flow table index value comprises combining said
source address field and said destination address field to form
said flow table index;

identifying a flow table entry using said flow table index value wherein said flow
table entry comprises

a first field comprising a rate credit value, and

a second field comprising a buffer count value;

determining a subsequent processing status of said data packet by comparing said
rate credit value with zero;

dropping said data packet without further processing when said comparison
indicates that said rate credit value is zero; and

processing said packet using said rate credit value and said buffer count value
only when said rate credit value has a non-zero value as determined by
said comparison.

14. (Original) The method of claim 13, wherein

said rate credit value represents a transfer rate of a flow associated with said flow
table entry, and

said buffer count value represents quantity of memory space allocated to said flow
associated with said flow table entry.

15. (Original) The method of claim 14, further comprising:

periodically incrementing said credit value by an increment.

16. (Original) The method of claim 15, wherein said periodically incrementing comprises:

periodically incrementing said credit value by an increment up to a predetermined maximum value.

17. (Previously Presented) The method of claim 13, wherein said at least one field comprises a set of fields, and said determining said flow table index value comprises determining said flow table index value using a subset of said set of fields.

18. (Previously Presented) The method of claim 13, wherein said flow table index value belongs to a first set of values, and a maximum number of values in said first set of values is less than a maximum number of possible flows.

19. (Cancelled)

20. (Currently Amended) The method of claim ~~[[19]]~~ 13, wherein said ~~determining said flow table index value~~ combining comprises at least one of: adding said source address field to said destination address field; performing an exclusive OR (XOR) operation using said source address field and said destination address field as operands; and adding said source address field to said destination address field to form a sum and performing a bit-wise shift operation on at least a portion of said sum.

21. (Previously Presented) The method of claim 13, wherein said at least one field comprises a plurality of fields, and said determining said flow table index value comprises at least one of: hashing data of said plurality of fields, and concatenating data of said plurality of fields.

22. (Original) The method of claim 13, further comprising:

performing said determining, said identifying, and said processing in response to a determination that data packet comprises a voice packet.

23. (Original) The method of claim 22, wherein said identifying a flow table entry comprises:

identifying a flow table entry within a voice flow table.

24. (Original) The method of claim 22, wherein said identifying a flow table entry comprises:

identifying a flow table entry within a voice portion of a flow table.

25. (Previously Presented) The method of claim 13, wherein said processing comprises at least one of:

enqueueing said data packet;

modifying said data packet; and

dropping said data packet.

26. (Original) The method of claim 25, wherein said processing further comprises:

comparing a size value associated with said data packet to said rate credit value;

and

comparing said buffer count value to a buffer limit value.

27. (Original) The method of claim 26, wherein said processing further comprises:

dropping said data packet in response to a determination that said buffer count value is greater than said buffer limit value.

28. (Original) The method of claim 26, wherein said processing further comprises:

dropping said data packet in response to a determination that said size value associated with said data packet is greater than said rate credit value.

29. (Original) The method of claim 26, further comprising:

decrementing said rate credit value by said size value associated with said data packet in response to a determination that said size value associated with said data packet is less than or equal to said rate credit value.

30. (Original) The method of claim 25, wherein said processing further comprises:

comparing a size value associated with said data packet to said rate credit value;
determining a buffer limit value in response to said comparing said size value associated with said data packet to said rate credit value; and
comparing said buffer count value to said buffer limit value in response to said determining said buffer limit value.

31. (Original) The method of claim 30, wherein said determining said buffer limit value comprises:

determining a buffer limit value in response to a determination that said size value associated with said data packet is less than or equal to said rate credit value.

32. (Original) The method of claim 31, wherein said determining said buffer limit value further comprises:

determining a reduced buffer limit in response to a determination that said size value associated with said data packet is greater than said rate credit value.

33. (Currently Amended) An apparatus comprising:

means for extracting at least one field from a data packet, wherein
said at least one field comprises a source address field and a
destination address field;

means for determining a flow table index value using said at least one field,
wherein
said means for determining said flow table index value comprises
means for combining said source address field and said
destination address field to form said flow table index;

means for identifying a flow table entry using said flow table index value wherein said flow table entry comprises
a first field comprising a rate credit value, and
a second field comprising a buffer count value;
means for determining a subsequent processing status of said data packet comprising means for comparing said rate credit value with zero;
means for dropping said data packet without further processing when said means for comparing indicates that said rate credit value is zero; and
means for processing said packet using said rate credit value and said buffer count value only when said rate credit value has a non-zero value as determined by said means for comparing.

34. (Original) The apparatus of claim 33, wherein
said rate credit value represents a transfer rate of a flow associated with said flow table entry, and
said buffer count value represents quantity of memory space allocated to said flow associated with said flow table entry.

35. (Original) The apparatus of claim 34, further comprising:
means for periodically incrementing said credit value by an increment.

36. (Original) The apparatus of claim 35, wherein said means for periodically incrementing comprises:
means for periodically incrementing said credit value by an increment up to a predetermined maximum value.

37. (Original) The apparatus of claim 35, wherein
said at least one field comprises a set of fields, and
said means for determining said flow table index value comprises means for determining said flow table index value using a subset of said set of fields.

38. (Original) The apparatus of claim 35, wherein
said flow table index value belongs to a first set of values, and

a maximum number of values in said first set of values is less than a maximum number of possible flows.

39. (Cancelled)

40. (Currently Amended) The apparatus of claim [[39]] 35, wherein said means for ~~determining said flow table index value~~ combining comprises at least one of:

means for adding said source address field to said destination address field;
means for performing an exclusive OR (XOR) operation using said source address field and said destination address field as operands; and
means for adding said source address field to said destination address field to form a sum and performing a bit-wise shift operation on at least a portion of said sum.

41. (Original) The apparatus of claim 35, wherein said at least one field comprises a plurality of fields, and said means for determining said flow table index value comprises at least one of:
means for hashing data of said plurality of fields, and
means for concatenating data of said plurality of fields.

42. (Original) The apparatus of claim 33, further comprising:
means for performing said determining, said identifying, and said processing in response to a determination that data packet comprises a voice packet.

43. (Original) The apparatus of claim 42, wherein said means for identifying a flow table entry comprises:
means for identifying a flow table entry within a voice flow table.

44. (Original) The apparatus of claim 42, wherein said means for identifying a flow table entry comprises:
means for identifying a flow table entry within a voice portion of a flow table.

45. (Original) The apparatus of claim 35, wherein said means for processing comprises at least one of:

- means for enqueueing said data packet;
- means for modifying said data packet; and
- means for dropping said data packet.

46. (Original) The apparatus of claim 45, wherein said means for processing further comprises:

- means for comparing a size value associated with said data packet to said rate credit value; and
- means for comparing said buffer count value to a buffer limit value.

47. (Original) The apparatus of claim 46, wherein said means for processing further comprises:

- means for dropping said data packet in response to a determination that said buffer count value is greater than said buffer limit value.

48. (Original) The apparatus of claim 46, wherein said means for processing further comprises:

- means for dropping said data packet in response to a determination that said size value associated with said data packet is greater than said rate credit value.

49. (Original) The apparatus of claim 46, further comprising:

- means for decrementing said rate credit value by said size value associated with said data packet in response to a determination that said size value associated with said data packet is less than or equal to said rate credit value.

50. (Original) The apparatus of claim 45, wherein said means for processing further comprises:

- means for comparing a size value associated with said data packet to said rate credit value;
- means for determining a buffer limit value; and

means for comparing said buffer count value to said buffer limit value.

51. (Original) The apparatus of claim 50, wherein said means for determining said buffer limit value comprises:

means for determining a buffer limit value in response to a determination that said size value associated with said data packet is less than or equal to said rate credit value.

52. (Original) The apparatus of claim 51, wherein said means for determining said buffer limit value further comprises:

means for determining a reduced buffer limit in response to a determination that said size value associated with said data packet is greater than said rate credit value.

53. (Currently Amended) A computer-readable storage medium having embodied therein a plurality of instructions executable by a computer, wherein said plurality of instructions when executed cause said computer to perform a method comprising:

extracting at least one field from a data packet, wherein

said at least one field comprises a source address field and a destination address field;

determining a flow table index value using said at least one field, wherein

said determining said flow table index value comprises combining said source address field and said destination address field to form said flow table index;

identifying a flow table entry using said flow table index value wherein said flow table entry comprises

a first field comprising a rate credit value, and

a second field comprising a buffer count value;

determining a subsequent processing status of said data packet by comparing said rate credit value with zero;

dropping said data packet without further processing when said comparison indicates that said rate credit value is zero; and
processing said packet using said rate credit value and said buffer count value only when said rate credit value has a non-zero value as determined by said comparison.

54. (Previously Presented) The computer-readable storage medium of claim 53, wherein
said rate credit value represents a transfer rate of a flow associated with said flow table entry, and
said buffer count value represents quantity of memory space allocated to said flow associated with said flow table entry.

55. (Previously Presented) The computer-readable storage medium of claim 54, wherein
said flow table index value belongs to a first set of values, and
a maximum number of values in said first set of values is less than a maximum number of possible flows.

56. (Previously Presented) The computer-readable storage medium of claim 54, wherein said processing further comprises:
comparing a size value associated with said data packet to said rate credit value;
determining a buffer limit value in response to said comparing said size value associated with said data packet to said rate credit value; and
comparing said buffer count value to said buffer limit value in response to said determining said buffer limit value.

57. (Previously Presented) The computer-readable storage medium of claim 56, wherein said determining said buffer limit value comprises:
determining a buffer limit value in response to a determination that said size value associated with said data packet is less than or equal to said rate credit value.

58. (Previously Presented) The computer-readable storage medium of claim 57, wherein said determining said buffer limit value further comprises:
determining a reduced buffer limit in response to a determination that said size value associated with said data packet is greater than said rate credit value.
59. (Currently Amended) A data processing system comprising:
a buffer manager configured to receive a data packet; and
a controller coupled to said buffer manager and configured to,
extract at least one field from a data packet, wherein
said at least one field comprises a source address field and a
destination address field;
determine a flow table index value using said at least one field, wherein
said determining said flow table index value comprises
combining said source address field and said destination
address field to form said flow table index;
identify a flow table entry using said flow table index value wherein said
flow table entry comprises
a first field comprising a rate credit value, and
a second field comprising a buffer count value;
determine a subsequent processing status of said data packet by being
configured to compare said rate credit value with zero;
drop said data packet without further processing when said comparison
indicates
that said rate credit value is zero; and
process said packet using said rate credit value and said buffer count value
only when said rate credit value has a non-zero value as
determined by said comparison.
60. (Original) The data processing system of claim 59, wherein
said rate credit value represents a transfer rate of a flow associated with said flow
table entry, and

said buffer count value represents quantity of memory space allocated to said flow associated with said flow table entry.

61. (Original) The data processing system of claim 60, wherein said flow table index value belongs to a first set of values, and a maximum number of values in said first set of values is less than a maximum number of possible flows.

62. (Original) The data processing system of claim 60, wherein said controller is further configured to, compare a size value associated with said data packet to said rate credit value; determine a buffer limit value; and compare said buffer count value to said buffer limit value.

63. (Original) The data processing system of claim 62, wherein said controller is further configured to, determine a buffer limit value in response to a determination that said size value associated with said data packet is less than or equal to said rate credit value.

64. (Original) The data processing system of claim 63, wherein said controller is further configured to, determine a reduced buffer limit in response to a determination that said size value associated with said data packet is greater than said rate credit value.

65-74. (Cancelled)

75. (Previously Presented) The method of claim 13, wherein said determining comprises:

using said at least one field as an input to a hash function; and determining said flow table index value as an output of said hash function.

76. (Previously Presented) The method of claim 75, further comprising:

periodically changing a seed value of said hash function.

77. (Previously Presented) The apparatus of claim 33, wherein said means for determining comprises:
means for hashing said at least one data field using a hash function to obtain said flow table index value.

78. (Previously Presented) The apparatus of claim 77, further comprising:
means for periodically changing a seed value of said hash function.

79. (Previously Presented) The data processing system of claim 59, wherein said controller is configured to determine said flow table index value by hashing said at least one field using a hash function.

80. (Previously Presented) The data processing system of claim 79, wherein said controller is further configured to periodically change a seed value of said hash function.